

WHAT IS CLAIMED IS:

1. A method of addressing and configuring a remote device; said method comprising:
 - identifying an input/output device coupled to a network;
 - assigning a network address to said device in accordance with a dynamic protocol; and
 - configuring said device with operational parameters in accordance with a dynamic protocol.
2. The method of claim 1 further comprising updating a data structure in accordance with said assigning.
3. The method of claim 1 wherein said identifying comprises ascertaining a physical location of said device on said network.
4. The method of claim 1 wherein said assigning comprises assigning a dynamic network address to said device using Dynamic Host Configuration Protocol.
5. The method of claim 1 wherein said configuring comprises transmitting data and instructions to said device using Dynamic Host Configuration Protocol.
6. The method of claim 2 wherein said updating comprises modifying a data structure maintained at a domain name server.
7. The method of claim 1 wherein said configuring comprises transmitting instructions to a programmable logic controller incorporated in said device.
8. An apparatus comprising:
 - a device identifier configured to identify an input/output device coupled to a network;
 - an address assigner operative in accordance with a dynamic network addressing protocol to assign a network address to said device; and
 - an operational parameter assigner operative in accordance with a dynamic protocol to transmit data and instructions related to operational parameters to said device.
9. The apparatus of claim 8 further comprising a database updater operative to modify a data structure in accordance with output from said address assigner.

- 1 10. The apparatus of claim 8 wherein said device identifier is operative to
2 ascertain the physical location of said device.
- 1 11. The apparatus of claim 8 wherein said address assigner is operative in
2 accordance with Dynamic Host Configuration Protocol.
- 1 12. The apparatus of claim 8 wherein said operational parameter assigner
2 operative in accordance Dynamic Host Configuration Protocol.
- 1 13. The apparatus of claim 8 wherein said database updater is operative to modify
2 a data structure maintained at a domain name server.
- 1 14. The apparatus of claim 8 wherein said device identifier comprises means for
2 detecting a request from a device and wherein said address assigner assigns
3 said network address to said device responsive to said request.
- 1 15. The apparatus of claim 8 wherein said operational parameter assigner is
2 operative to transmit data and instructions to a programmable logic controller
3 incorporated in said device.
- 1 16. A computer readable medium encoded with data and computer executable
2 instructions for addressing and configuring a remote device; the data and
3 instructions causing an apparatus executing the instructions to:
4 identify an input/output device coupled to a network;
5 assign a network address to said device in accordance with a dynamic
6 protocol; and
7 configure said device with operational parameters in accordance with a
8 dynamic protocol.
- 1 17. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to update a data structure with said
3 network address assigned to said device.
- 1 18. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to ascertain a physical location of
3 said device on said network.

- 1 19. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to assign said network address to
3 said device using Dynamic Host Configuration Protocol.
- 1 20. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to configure said device using
3 Dynamic Host Configuration Protocol.
- 1 21. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to receive a request from said device
3 and to assign said network address responsive to said request.
- 1 22. The computer readable medium of claim 16 further encoded with data and
2 instructions, further causing an apparatus to detect a failure of said device and
3 to identify a replacement input/output device coupled to said network.
- 1 23. A network-based monitor and control system comprising:
2 an input/output device coupled to a network;
3 a host coupled to said network and configured to exchange data and
4 instructions with said device; and
5 an address management server coupled to said network and operative
6 to assign a network address to said device in accordance with a
7 dynamic protocol.
- 1 24. The system of claim 23 wherein said address management server is further
2 operative to configure said device in accordance with a dynamic protocol.
- 1 25. The system of claim 23 further comprising a domain name server operative to
2 maintain a data structure associating said network address with an identifier.
- 1 26. The system of claim 23 wherein said device is operative to broadcast a request
2 to be identified, and said address management server assigns said network
3 address to said device responsive to said request.
- 1 27. The system of claim 23 wherein said address management server is operative
2 to transmit said network address to said host.
- 1 28. The system of claim 23 further comprising a replacement input/output device
2 and wherein said address management server is operative to assign a

- 3 replacement network address to said replacement device in accordance with a
- 4 dynamic protocol.
- 1 29. The system of claim 28 wherein said address management server is operative
- 2 to transmit said replacement network address to said host.
- 1 30. The system of claim 23 wherein said address management server and said
- 2 domain name server are incorporated in a single computer.
- 1 31. The system of claim 24 wherein said device comprises a programmable logic
- 2 controller operative to receive configuration instructions from said address
- 3 management server.
- 1 32. An input/output device operative in a network-based monitor and control
- 2 system; said device comprising:
 - 3 a data port selectively coupled to one of a sensor and an actuator;
 - 4 a network interface enabling bi-directional data communication
 - 5 between said device and a remote network client; and
 - 6 a control module coupled to said data port and to said network
 - 7 interface and operative to exchange data and instructions between said
 - 8 data port and said network interface, said control module being
 - 9 operative to receive a network address through said network interface
 - 10 in accordance with a dynamic protocol.
- 1 33. The device of claim 32 wherein said control module is operative to transmit a
- 2 request to be identified through said network interface and wherein said
- 3 control module receives said network address responsive to said request.
- 1 34. The device of claim 32 wherein said control module is operative to receive
- 2 configuration instructions through said network interface in accordance with a
- 3 dynamic protocol.
- 1 35. The device of claim 32 wherein said network interface enables wireless data
- 2 communication.
- 1 36. The device of claim 32 wherein said control module comprises a
- 2 programmable logic controller.